



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,008	10/30/2003	Yiqing Liang	1617880-0010	7403

7470 7590 07/11/2007  
WHITE & CASE LLP  
PATENT DEPARTMENT  
1155 AVENUE OF THE AMERICAS  
NEW YORK, NY 10036

EXAMINER
----------

TORRES, JOSE

ART UNIT	PAPER NUMBER
----------	--------------

2624

MAIL DATE	DELIVERY MODE
-----------	---------------

07/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/698,008		LIANG ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Jose M. Torres		2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 42-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/04/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Comments***

1. The Amendment filed on May 18, 2007 has been entered and made of record. The priority date considered for new added claims (42-82) is October 30, 2003, since they differ in scope from previously filed U.S. Patent Application No. 09/718,374. The behavioral events detected and characterized in the current application are based on at least one body part of the animal and the center of mass of the animal, which is different from the activity characterization in the previously filed U.S. Patent Application.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 42-82 are rejected under 35 U.S.C. 102(e) as being anticipated by Brunner et al. (US 2003/0100998).

Re claims 42, 57 and 75: Brunner et al. disclose a method/computer-readable medium for characterizing animal behavior (Paragraph [0002]), comprising: segregating images of an animal from video images of the animal in a behavioral

analysis apparatus ("background subtraction"), wherein the video images are taken from a top view (FIG. 15, "top camera 1502", Paragraphs [0281] and [0295]); identifying at least one body part of the animal (Paragraph [0296]); identifying a center of mass of the animal (Paragraph [0296]); and characterizing/detecting behavior of the animal using the at least one body part and the center of mass of the animal (Paragraphs [0299] and [0302]).

Re claim 43: Brunner et al. disclose subtracting a background image from a video image containing an image of an animal ("background subtraction", Paragraph [0295]).

Re claims 44, 45, 58, 59, 76 and 77: Brunner et al. disclose comparing a location of the at least one body part of the animal and a location of the center of mass of the animal to pre-trained behavior models/predefined rules (The positions of the anatomical features are compared to a set of decision rules. Paragraphs [0302] and [0303]).

Re claims 46 and 47: Brunner et al. disclose determining the location of the at least one body part/center of mass of the animal in relation to a user-defined virtual zone (The body parts and the center of mass are located within the apparatus shown in FIG. 15, which is a user-defined zone. Paragraphs [0281], [0295] and [0296]).

Re claims 48-52, 70-74 and 78-82: Brunner et al. disclose the at least body part is a head, tail, waist, fore body, and hind body ('back of the animal, tail, extremities, shoulders, rump, base of tail' Paragraphs [0276] and [02296]).

Re claims 53 and 54: Brunner et al. disclose the behavior analysis apparatus is an open field apparatus/a maze apparatus (FIG. 2, "open field..physical challenge such as an obstacle course or maze", Paragraphs [0147] and [0243]).

Re claims 55 and 56: Brunner et al. disclose the behavior analysis apparatus includes recognition objects ('moving an object')/a fear chamber ('fear conditioning' Paragraphs [0147] and [0261]).

Re claim 60: Brunner et al. disclose detecting behavioral events includes detecting a turning ratio of the animal by taking a ratio of a path length traveled over a number of turns, wherein a turn is counted when the animal makes a turn larger than ninety degrees when the animal travels one body length ('Drug-Induced Turning', Paragraph [0271]).

Re claim 61: Brunner et al. disclose detecting behavioral events includes detecting sniffing behavior of the animal by detecting when the animal's nose is in contact with a recognition object in the behavioral analysis apparatus ('sniffing', Paragraph [0148]).

Re claim 62: Brunner et al. disclose detecting behavioral events includes detecting stretch-and-attend by detecting the animal's approach to an object with fore body stretched and then lowered, followed by retraction of the fore body ('stretch-attend', Paragraph [0148]).

Re claim 63: Brunner et al. disclose detecting behavioral events includes detecting stay-across-areas by detecting the animal's partial incursions into a zone of the behavioral analysis apparatus (When the animal is being tested for olfactory cues, it partially perform an incursion on the baited holes (zones). Paragraph [0262]).

Re claim 64: Brunner et al. disclose detecting behavioral events includes detecting head dipping by detecting the animal's exploratory movement of its head over an edge of the behavioral analysis apparatus (The head poking into a hole to retrieve food, performed by the animal is detected. Paragraph [0262]).

Re claim 65: Brunner et al. disclose detecting behavioral events includes detecting freezing by detecting an absence of movement of the animal's body for a period of time ('freezing', Paragraph [0148]).

Re claim 66: Brunner et al. disclose detecting behavioral events includes detecting locomoting by detecting movement of the animal within the behavioral analysis apparatus ("locomotion" Paragraph [0148]).

Re claim 67: Brunner et al. disclose detecting behavioral events includes detecting transgressing behavior by detecting movement of the animal from a defined zone within the behavioral analysis apparatus to another defined zone within the behavioral analysis apparatus ("Straight Alley", Paragraph [0271]).

Re claim 68 Brunner et al. disclose detecting behavioral events includes calculating a proximity score by determining a distance of the animal from a goal at predetermined time intervals ("Straight Alley", Paragraph [0271]).

Re claim 69: Brunner et al. disclose detecting behavioral events includes determining heading errors by detecting when the animal is moving away from a goal ("Orientation, direction of turning", Paragraph [0271]).

### ***Response to Arguments***

#### **Information Disclosure Statement**

4. With respect to the Information Disclosure Statement filed on December 4, 2006, Applicant has indicated that the NPL documents not previously considered can be found with the previously filed U.S. Patent Application No. 09/718,374. However,

consideration of some NPL documents (1, 2 and 36-50) cannot be made since their hard copy cannot be found with the prior U.S. Patent Application. If submission of these documents is made, further consideration will be made. Please refer to attached IDS.

*Objections to the Drawings*

5. Applicant has added a new paragraph on page 38 between lines 2 and 3 to further explain Figure 3 originally presented, and a sentence in page 42, line 1, between the "314." and "An example". Therefore, the objections have been removed.

*Objections to the Specification*

6. Applicant has added new "CROSS-REFERENCE TO RELATED APPLICATION" Section in page 1, which makes reference to U.S. Patent Application No. 09/718,374, filed on November 24, 2000, now U.S. Patent No. 6,678,413 issued on January 13, 2004. Therefore, the objection has been removed.

Applicant has replaced the paragraph on page 7, lines 10-21 to correct typological errors.

Applicant has amended page 6, line 9 to recite "produce" to correct sentence grammar. Therefore, the objection has been removed,

Applicant has amended page 7, line 4 to recite "apparatus." to correct sentence grammar.

Applicant has amended page 16, line 17 to recite "animal's" to correct sentence grammar. Therefore, the objection has been removed.



Applicant has amended page 39, line 14 to recite "715, 720" to correct sentence grammar. Therefore, the objection has been removed.

Claim Objections

7. Applicant has cancelled claims 1-41. Therefore, the objections have been removed,

Claim Rejections under 35 U.S.C. §112

8. Applicant has cancelled claims 1-41. Therefore, the rejections have been removed.

Double Patenting

9. Applicant has cancelled claims 1-41. Therefore, the rejections have been removed.

Claim Rejections under 35 U.S.C. § 102

10. Applicant's arguments with respect to claims 1-8 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections under 35 U.S.C. § 103

11. Applicant's arguments with respect to claims 9-12 and 14-41 have been considered but are moot in view of the new ground(s) of rejection. With respect to

claims 42, 57 and 75, Applicant alleges that Brunner does not disclose identifying at least one body part of the animal, in page 16 of the Amendment filed on May 18, 2007. Examiner respectfully disagrees with Applicant assertion since in Paragraph [0296] of Brunner et al. the Image Segmentation Model module output is subject to a 2D modeling, which processes the image of the animal obtained and identify some anatomical features of the animal such as the nose, shoulders, rump, etc. Furthermore in Paragraph [0276] the tracking of the animal is based on changes in the positions of the tail, nose, extremities, chest, ears, etc. therefore the limitation as claimed in claims 42, 57 and 75 is clearly anticipated by Brunner et al. See Claim Rejections under 35 U.S.C. § 102 above for detailed rejection.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gondhalekar et al. disclose a Programmable Electronic Maze for Use in the Assessment of Animal Behavior.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose M. Torres whose telephone number is 571-270-1356. The examiner can normally be reached on Monday thru Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Application/Control Number: 10/698,008

Page 11

Art Unit: 2624

JMT

06/26/2007



JINGGE WU  
SUPERVISORY PATENT EXAMINER